

## Two New Species of *Pseudocotalpa* Hardy

(Coleoptera: Scarabaeidae)

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Since the publication of the description of *Pseudocotalpa* Hardy (1971:238), two additional undescribed species of this group have been collected. This necessitates a slight redefinition of the genus, as follows.

The illustrations were prepared by Ellen Parker, to whom I extend my deep appreciation.

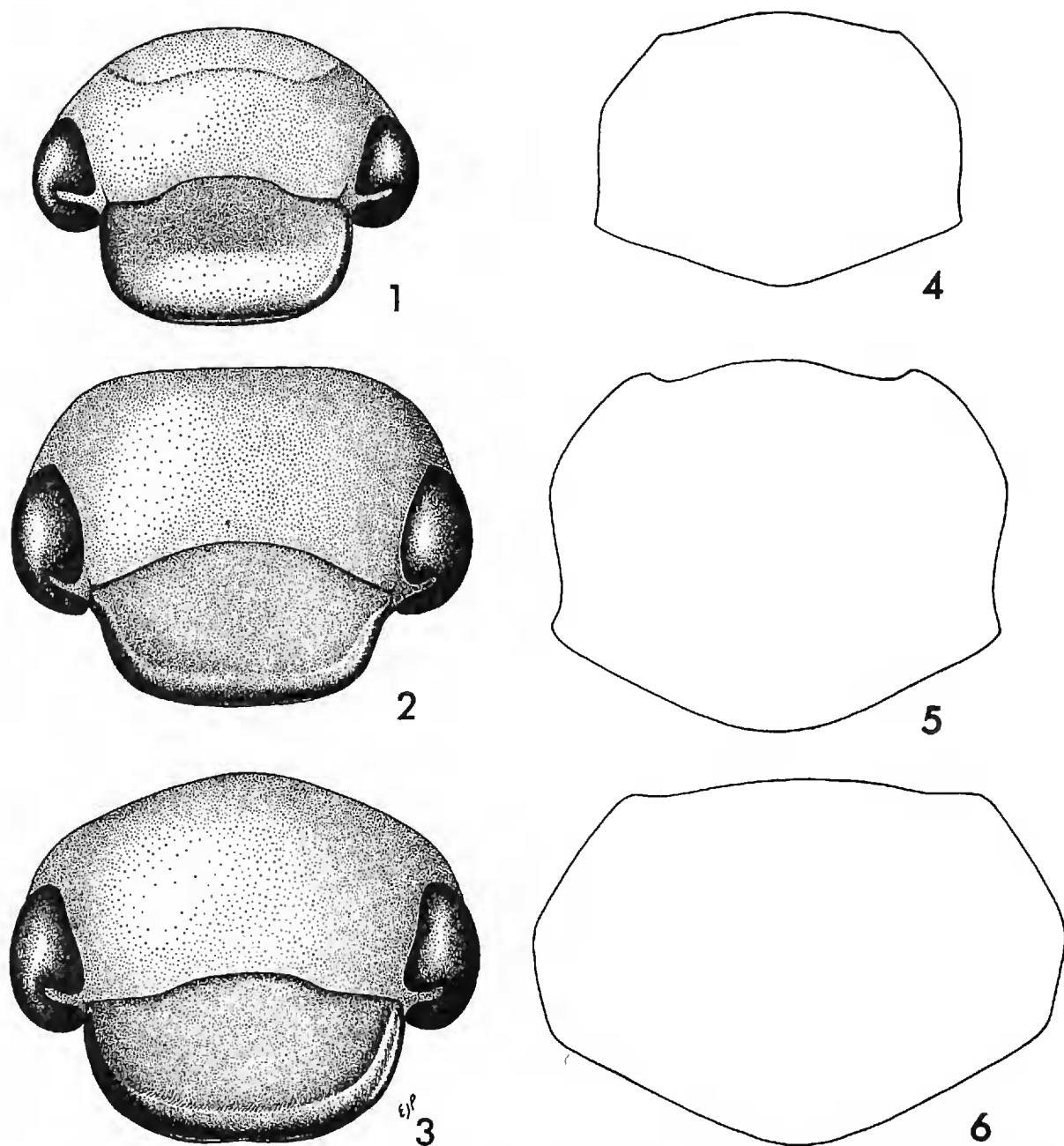
### GENUS *PSEUDOCOTALPA* Hardy

Body form robust; eye large, globular, antennae 10-segmented, with three-segmented club, clypeus concave, mandible with outer edges rounded, without external teeth; maxillary palp four-segmented with fourth segment enlarged, longer than other three segments, apical segment with deeply impressed groove on outer edge, running length of segment. Postcoxal prosternal spine poorly developed, not present as well developed knob. Flight wings well developed; six free abdominal segments visible from below. Without well developed process between meso-coxae. Anterior tibia tridentate, with or without apical spur. Posterior tibia enlarged at apex, with one or two spurs. All tarsal claws simple, not cleft, all chelate.

The genus *Pseudocotalpa* may be distinguished from closely related genera in the Areodina by the distinctive shape of the clypeus, *Pseudocotalpa* being the only genus in which the clypeus is deeply concave; and by the poorly developed prothoracic post-coxal spine or knob, which is well developed and evident in other genera. The enlarged, deeply grooved maxillary palp is also characteristic.

### *Pseudocotalpa giulianii*, new species

Holotype male: Greatest length 23 mm, width at elytral humeri 11.5 mm. Dorsal surface light colored, prothorax and head with a deeper yellow coloration than elytra, apex of clypeus, margins of prothorax and posterior margin of scutellum dark reddish brown. Legs same color as prothorax; abdomen, apex of tibiae and all tarsi dark reddish brown. Upper surface glabrous except for margins of prothorax, which are provided with fine, long, erect pale hairs and a dense net of shorter recumbent hairs on anterior and posterior margins. Ventral surface of thorax densely clothed with erect, long, fine white hairs. Clypeus concave, margins elevated, closely, shallowly punctured; suture arcuate (Fig. 2). Front with scattered fine punctures. Prothorax with uniformly spaced medium punctures; punctures separated by own diameter or slightly less. Lateral pro-

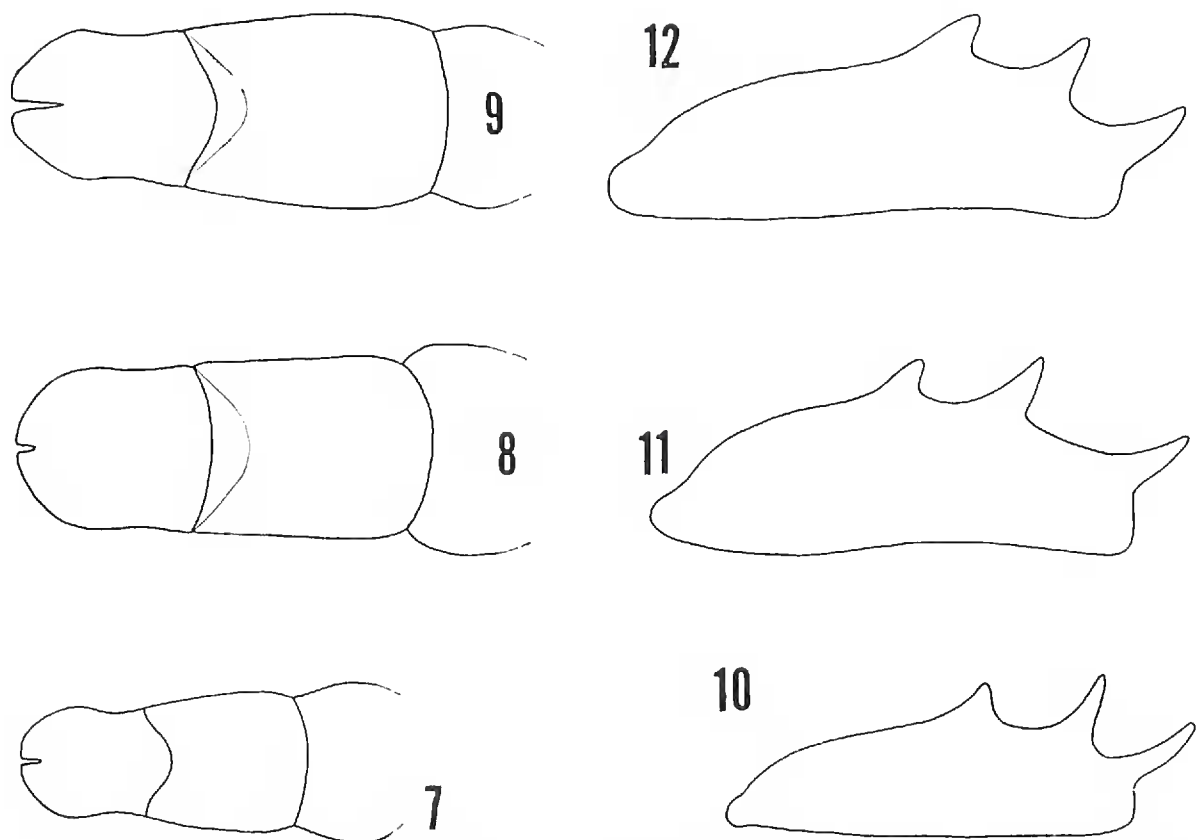


FIGS. 1-6. *Pseudocotalpa* spp. *P. andrewsi*; Fig. 1, head; Fig. 4, prothorax. *P. giulianii*; Fig. 2, head; Fig. 5, prothorax; *P. sonora*; Fig. 3, head; Fig. 6, prothorax.

thoracic margin with slight emargination anterior to posterior angles (Fig. 5). Elytra with fine marginal bead laterally, indistinct or absent apically and basally. Elytral apex subacute at sutural margin. Elytral striae faintly indicated; disc with scattered medium and fine punctures. Pygidium with complete apical margin; rugulose with scattered fine punctures. Meso- and meta-tibiae with two apical spurs.

Allotype female: Greatest length 20.5 mm, width at elytral humeri 10 mm. Differs from male in these respects: Antennal club and maxillary palp very slightly shorter than that of male. Anterior tibiae with teeth thinner, spine-like; tarsal claws thinner.

Variation in type series: Males; length 17 mm to 25 mm, width 7.5 mm to 11 mm. Females; 14 mm to 22 mm, width 7 mm to 10 mm. Unlike *P. andrewsi*,



FIGS. 7-12, *Pseudocotalpa* spp. *P. andrewsi*; Fig. 7, male genitalia; Fig. 10, anterior tibia. *P. giulianii*; Fig. 8, male genitalia; Fig. 11, anterior tibia. *P. sonora*; Fig. 9, male genitalia; Fig. 12, anterior tibia. (All tibiae are of males).

all specimens examined have two posterior apical tibial spurs. Most noticeable variation is in coloration, which is darker in many specimens, apparently the result of different amounts of brown pigment.

Male genitalia Fig. 8.

Holotype (Calif. Acad. Sci. No. 11942) and 42 paratypes (34 males and 8 females); NEVADA, NYE CO., AMARGOSA DESERT, SAND DUNES, 26-IV-1972, Derham Giuliani Collr. (CAS); allotype and 6 paratypes, same data except 17-V-1972 (CAS); 23 paratypes (18 males, 5 females), same data except 28-IV-1973, A. J. and M. E. Gilbert Collrs. (AJG); 85 paratypes (75 males, 10 females), same data except 29-IV-1973, R. McPeak Collr.; 31 paratypes (23 males, 8 females), same data except 30-IV-1973, R. McPeak Collr.; 113 paratypes (86 males, 27 females), same data except 1-V-1973, R. McPeak Collr. (RMcP; AMNH; CNC; USNM; LACM; MCZ; FMNH; ARH; HFH).

The type locality is located in South Central Nye Co., near the border with California and Death Valley National Monument, and is known as Big Dune.

The first series of this species was collected by Derham Giuliani (for whom this species is named) by utilizing the information on behavior which accompanied the original (1971) description of *Pseudocotalpa andrewsi* Hardy. Giuliani reports that the behavior of the two species is similar.

*Pseudocotalpa sonora*, new species

Holotype male: Greatest length 21 mm, width at elytral humeri 10 mm. Dorsal surface light colored, prothorax and head with a slightly deeper yellow coloration than elytra. Antennae, palps, posterior margin of scutellum and all tarsi dark reddish brown. Disc of prothorax, elytra, and pygidium with many scattered, very fine, long, erect, white hairs; lateral prothoracic margins with denser pubescence; anterior and posterior prothoracic margins with shorter, very dense semi-recumbent white hair. Ventral surfaces of head and thorax densely clothed with erect, long, fine white hairs. Clypeus concave, margins elevated; closely rugosely punctured; suture abruptly arcuate medially (Fig. 3). Front with dense medium punctures, punctures often with long erect hairs; prothorax with complete marginal bead; all angles broadly rounded (Fig. 6). Elytral margin with poorly developed bead; sutural apex spiniform. Elytral striae faintly indicated; disc with scattered fine punctures. Pygidium with complete apical marginal bead; disc rugulose with scattered punctures. Meso- and meta-tibia with two apical spurs. Male genitalia Fig. 9.

Holotype male (CAS No. 11943); MEXICO, SONORA, 50 MI. S. W. SONOYTA. III-12-1973, F. G. Andrews, A. R. Hardy Collrs.

The type locality is approximately 10 mi. N.E. of Puerto Penasco on Highway 8, and is the long high dune mass lying one or two miles to the north of the highway.

Two additional individuals have been examined, both dead and badly broken, which are excluded from the type material. So far as can be determined, both agree and are conspecific with the type. One specimen (female?) from the type locality; the second (female?) was collected 4 mi. N.E. Sotello, a railroad stop on the Ferrocarril del Pacifico, between El Doctor and Puerto Penasco, and is approximately 10-20 mi. N. or N.W. of Puerto Penasco.

The type specimen was collected at dusk, as it flew over the surface of the sand. An additional specimen was observed at the type locale, but could not be collected. It thus appears likely that this species exhibits the same type of behavior as the other known species of this genus.

## PSEUDOCOTALPA ANDREWSI Hardy

*Pseudocotalpa andrewsi* was originally described from 120 specimens. Since that time I have collected 51 males and 31 females on IV-22-1971, at the type locality. I have seen an additional specimen from 3 mi. N.W. Glamis, Imperial Co., California.

It should be noted that through an error on the author's part, the captions to the figures in the original description were reversed. Figure 1 represents the male holotype, not the female allotype as stated. Figure 2 represents the female allotype. The other captions are correct.



## A KEY TO THE SPECIES OF PSEUDOCOTALPA

1. Hind angles of the prothorax broadly rounded (Fig. 6); elytra and prothorax with erect fine pubescence medially; size larger (20 mm+) anterior tibiae with basal tooth distal of midpoint (Fig. 12); from Sonora, Mexico ..... *Pseudocotalpa sonora* new species
- 1' Hind angles of the prothorax well defined, often with a slight emargination anterior to the angle (Figs. 4 and 5); elytra and prothorax glabrous medially; size smaller or larger (14 mm to 25 mm); anterior tibiae with basal tooth either distal of midpoint (Fig. 10) or distinctly medial (Fig. 11); from the United States ..... 2
2. Frontal-clypeal suture evenly arcuate (Fig. 2); anterior tibiae with basal tooth distinctly medial (Fig. 11); size larger (17 mm to 25 mm); from Nevada ..... *Pseudocotalpa giulianii* new species
- 2' Frontal-clypeal suture abruptly arcuate medially (Fig. 1); anterior tibiae with basal tooth distal of mid-point (Fig. 10); size smaller (13.5 mm to 17.5 mm); from California ..... *Pseudocotalpa andrewsi* Hardy

## LITERATURE CITED

- HARDY, ALAN R. 1971. The North American Areodina with a description of a New Genus from California. *Pan-Pacific Entomol.*, 47(3): 235-242, illus.

## NEW JOURNAL

PALEOBIOLOGY. T. J. M. Schopf and R. G. Johnson, editors. Department of the Geophysical Sciences, University of Chicago, Chicago, Illinois 60637. Published quarterly, approximately 400 pp. per year. Initial issue, Spring, 1975. \$8.00 (members of the Paleontological Society); \$12.00 (non-members).

This journal will focus on ecological and evolutionary processes, especially as seen in the paleontological context. The first issue will contain articles dealing with rates of evolution and extinction, growth rates in corals, and theoretical morphology of plants with spiral growth. Contributions are accepted from neontologists as well as paleontologists.